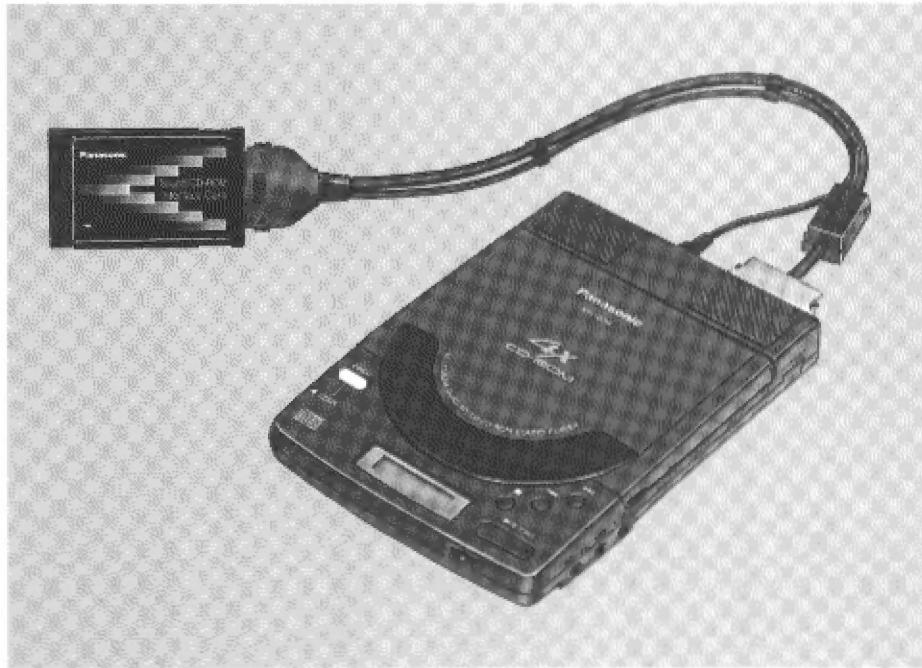


Panasonic

*Multimedia Quad Speed
CD-ROM Sound Player*

Model No. **KXL-D745**

Operating Instructions



Please read before using and store in a safe place.

WARNING

- The power source voltage of the AC adaptor is listed on the nameplate. Plug the AC adaptor only into an outlet with the proper voltage.
- To prevent fire or shock hazard, do not expose this product to rain or any type of moisture.

CAUTION

- When you operate this equipment, the mains socket-outlet should be near the equipment and should be easily accessible.
- To prevent the SCSI interface connector from static electricity damage, before you touch it, discharge any static electricity from your hands by touching a grounded metal surface, such as the screw on the plate cover of an electrical outlet.

CAUTION FOR LASER

This product utilizes a laser.

Use of control, adjustment or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Do not open covers and do not repair yourself. Refer servicing to qualified personnel.

Laser diode properties

Material	GaAlAs
Laser output	Less than 52.65 µW
Wave length	790 nm
Emission duration	Continuous

(This output is the value measured at the distance of 200 mm from the objective lens surface.)

FOR USERS IN UNITED STATES ONLY

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the booklet "Something About Interference" available from FCC local regional offices helpful.

FCC Warning: To assure continued FCC emission limit compliance, the user must use only the recommended shield interfacing cable when connecting to a host computer. Also, any unauthorized changes or modifications to this equipment would void the users authority to operate this device.

FOR USERS IN CONTINENTAL UNITED STATES ONLY

Technical Support and Service Parts Calls

If you have read this manual and tried the troubleshooting procedures, and you are still having difficulty, please contact the store from which the unit was purchased. Panasonic Communications & Systems Company will repair this product with new or refurbished parts free of charge for two (2) years from the date of purchase.

You may also call the technical support telephone number (24 hours/7 days).

**The technical support number is: 1-800-PANA-SYS
(1-800-726-2797)**

The service parts number is: 1-800-332-5348

The serial number of this unit may be found on the label located at the bottom of the unit. Write this number below and keep this book along with your proof of purchase to serve as a permanent record of your purchase or for future reference.

MODEL NO. KXL-D745 NAME OF DEALER _____

SERIAL NO. _____ DATE OF PURCHASE _____

IBM is a trademark of International Business Machines Corporation.

Microsoft®, Windows® and MS-DOS® are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Photo CD is a trademark of Eastman Kodak Company.

Sound Blaster is a trademark of Creative Technology Ltd.

AudioDrive is a trademark of ESS Technology, Inc.

All other brands and product names are trademarks or registered trademarks of their respective companies.

Microsoft MS-DOS® CD-ROM Extensions Copyright © Microsoft Corporation.
1986-1993, All rights reserved.

Any details given in these Operating Instructions are subject to change without notice.

Copyright © 1994, by ESS Technology, Inc. All rights reserved.

All Rights Reserved, © COPYRIGHT 1996 KYUSHU MATSUSHITA ELECTRIC CO., LTD.

■ Features:

- **Quad Speed External Drive (Max. 600 KB/s).**
- **Supports CD-ROM, CD-ROM XA, CD-DA, Photo CD Multisession, CD-I *¹, VIDEO CD *¹.**
- **Sound Blaster FM Sound Source for Windows and DOS Ad-Lib Compatible.**
- **YAMAHA OPL3 Compatible FM Music Synthesizer.**
- **Recording & Playback up to 44.1 kHz CD Quality Stereo Sound.**
- **Includes a variety of Sound System Utilities for Windows 3.1, 3.11.**
- **Stereo speakers are built into CD-ROM player.**
- **Use as a Personal Audio CD Player with built-in speakers or Headphones (not included) (☞ P. 29).**
- **Operates on Lightweight AC Adaptor, Six (6) "AA" size Batteries (not supplied) or Optional Rechargeable Battery (Ni-Cd) (☞ P. 11~14).**
- **Can be connected to a notebook/desktop computer which has PCMCIA card slot with supplied Sound/CD-ROM Interface Card and Interface cable (☞ P. 15, 17).**
- **Can be connected to a desktop computer with purchase of SCSI board and SCSI cable *² (☞ P. 17).**
- **Both CD-ROM and audio CD can be played when attached to your computer (☞ P. 28).**
- **Compatible with Windows 95, Plug and Play PCMCIA Interface Card (Type II).**
- **SCSI-2 Software Command Compatible.**

*¹ When using CD-I or VIDEO CD, commercial MPEG Boards are required on the computer side.

*² Audio data (WAVE and MIDI, etc.), except for CD-DA data, cannot be played back through the built-in speakers when connected to a desktop computer with a SCSI board installed. If you install the Sound board onto the computer, you can listen to audio data through the Line-out jack of the Sound board.

Important:

■ Please use CD-ROMs with the marking below.



■ Please use audio CDs with the marking below.



Table of Contents

Technical Support and Service Parts Calls	4
Chapter 1	
Before Using	
Precautions	8
Accessories	8
Part Names	9
Power Supply	11
Using supplied AC adaptor	11
Using rechargeable battery (option)	11
Using alkaline batteries (not supplied)	14
Chapter 2	
Setup	
Connection	15
Connecting player to a notebook computer ...	15
Connecting the microphone	16
Connecting an audio connecting cable (not supplied)	16
Connecting player to a desktop computer ...	17
Power On	18
Software Installation	19
Before installing software	19
Installing under Windows 3.1, 3.11	20
Installing under Windows 95	25
Chapter 3	
Operation	
Inserting/Removing a CD	27
Using the Player with a Computer	28
Playing a CD-ROM	28
Playing an audio CD	28
Using as a Personal Audio CD Player ..	29

Table of Contents

Chapter 4	Introduction	30
Audio Applications Operation	Volume Control	31
	Mixer	32
	Audio Recorder	34
{ For Windows 3.1, 3.11 }	Extended Recorder	44
	Recording Control	48
 Chapter 5		
General Information	Error Messages on Computer	50
	README File	51
	Troubleshooting	53
	Details of Setup Disk Software	56
	SCSI ID Number and Terminator	59
	Maintenance	60
	Specifications	61
	End-User License Agreement	63
	Index	65
	Option	67

Chapter 1

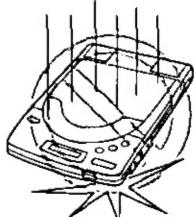
Chapter 2

Chapter 3

Chapter 4

Chapter 5

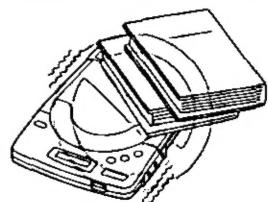
Precautions



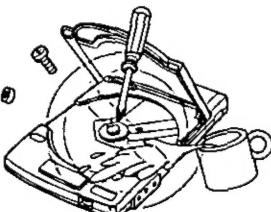
- Do not drop or jar the player.



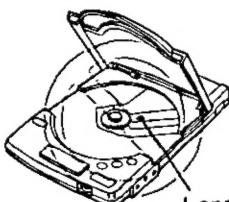
- Do not scratch or smudge the surface of CD.



- Do not place heavy objects on the player.
- Do not shake or subject to intense vibration.



- Do not disassemble the player.
- Do not spill liquid.



- Do not touch the lens.



- Do not expose the player to direct sunlight or heat. Especially do not leave it in a hot automobile.

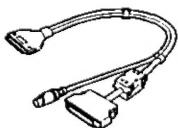
- Keep disc cover closed to protect from dust.
- Do not play CD-ROM/audio CD while transporting.
- Do not use near any appliance that may cause vibration.

Accessories

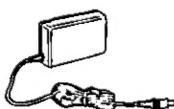
Make sure that the following accessories are included with the player.



**Sound/CD-ROM
Interface Card**
(☞ P. 15)



Interface cable
(☞ P. 15)

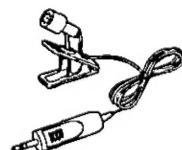


AC adaptor
(KX-WZ322)
(☞ P. 11)

[The shape may differ from the product.]



Setup disk
(☞ P. 19)



Microphone
(☞ P. 16)

- Operating instructions

- Warranty card

Part Names

Top view

Disc cover (☞ P. 27)

Lock switch (☞ P. 27)
Locks the disc cover by sliding the Lock switch toward the rear of the player.

OPEN button (☞ P. 27)
Opens the disc cover.

Display (☞ P. 10)

VOLUME control (☞ P. 29)

Adjusts the volume of the built-in speakers or headphones (not supplied) connected to the PHONES jack (0~10).

**▶/I/CHG
(PLAY/PAUSE/CHARGE button)**

Starts/pauses playing audio CD (☞ P. 29) or charges the optional rechargeable battery by pressing this button (☞ P. 12).

Built-in speakers (☞ P. 28, 29)

POWER switch (☞ P. 18)
Turns the power on/off.

■ (STOP button) (☞ P. 29)
Stops playing audio CD.

▶▶ (Forward skip button) (☞ P. 29)
Skips to the next track(s).

LINE IN jack (☞ P. 16)
Connects to the Line-out jack of an audio device by using a commercially available audio connecting cable.

MIC jack (☞ P. 16)
Connects the supplied microphone for voice or music recording.

PHONES jack (☞ P. 28, 29)
Connects your headphones (not supplied).

◀◀ (Reverse skip button) (☞ P. 29)
Skips to the previous track(s) or returns to the beginning of the track being played.

Rear/Bottom view

Battery cover
(☞ P. 11, 14)

DC IN jack
(☞ P. 11)

SOUND interface connector (☞ P. 15)

DIP switch (☞ P. 59)
Sets the SCSI ID number.
Sets the terminator ON or OFF.

RESET switch (☞ P. 53)
Resets the player.

SCSI interface connector
(☞ P. 15)

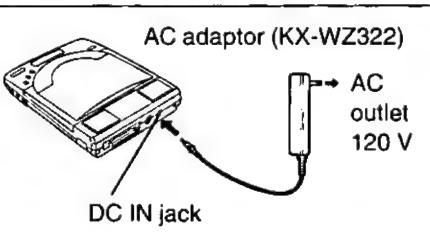
Display messages

Message/Indication	Description
-AUDIO DISC ONLY-	With a CD-ROM inserted in the player, if you press  or  , a blinking message "AUDIO DISC ONLY" appears.
BUSY	When data is being transferred, a blinking message "BUSY" appears.
	CD is not inserted, or the inserted CD is not recognized because either the CD is placed with the label side facing down, or it is damaged, dirty, wet, etc.
on	When CD-ROM is inserted, a message "on" is displayed. While CD-ROM or audio CD is recognizing, a blinking message "on" appears.
01 00:00	Audio CD is recognized.
OPEN	The disc cover is open.
	When the battery is low, this blinking indication appears.
	This blinking indication appears while the rechargeable battery (option) is being charged.

Power Supply

The supplied AC adaptor, rechargeable battery (option) or Alkaline batteries (not supplied) can be used for power source of the player.

Using supplied AC adaptor



Connect one end of the AC adaptor to DC IN jack and the other end to household AC outlet.

Caution:

- Use only the supplied AC adaptor (KX-WZ322), since other adaptors may damage the player.

Using rechargeable battery (option)

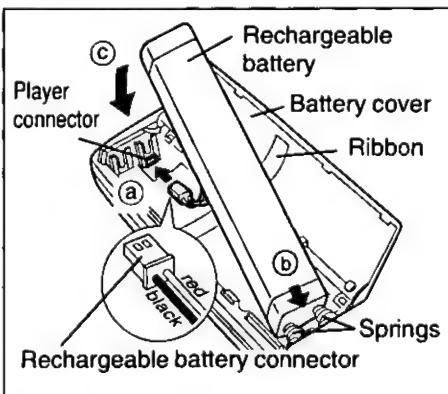
Optional rechargeable battery (KXL-D30) needs to be purchased. Before initial use, please charge the rechargeable battery (☞ P. 12).

Note:

- When using the rechargeable battery, the data transfer rate may decrease and the access time may increase.

Installing rechargeable battery

Make sure the player is off.



- ① Open the battery cover by sliding and lifting it up.
- ② Insert the rechargeable battery connector into the player connector (a).
- ③ Install the rechargeable battery (c) placing the ribbon underneath it and pressing the springs (b).
- ④ Close the battery cover by pressing it down and sliding it back.

Note:

- If the player is not going to be used for more than two (2) months, remove the rechargeable battery to maintain the battery life.

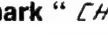
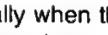
Charging rechargeable battery

Charge the rechargeable battery:

- Before initial use.
- When the blinking mark “” appears on the player's display.

Caution:

- Do not charge the rechargeable battery using a charger other than this player.

- 1** **Install the rechargeable battery** ( P. 11 “Installing rechargeable battery”).
- 2** **Connect the supplied AC adaptor** ( P. 11).
- 3** **Turn on the player by pressing the POWER switch** ( P. 18).
- 4** **Press  on the player until the mark “” appears.**
Charging starts and it will complete automatically when the mark “” disappears and the power goes off. A full battery charge requires a maximum of three (3) hours.
 - To stop charging, turn off the power.

Notes:

- While charging no operation can be performed.
- If you charge the rechargeable battery under extremely low or high temperature, the charging capacity may reduce. Please charge the rechargeable battery within an appropriate temperature range of 5°C to 35°C.
- If the blinking mark “” appears while using the rechargeable battery with the computer attached, connect the AC adaptor. Otherwise the computer may not function properly.

■ Supplemental charging function:

Charging starts automatically when the rechargeable battery is installed, the AC adaptor is connected and the power is on. While being charged no mark appears on the player's display.

In this case, a full charge may not be done. To charge the rechargeable battery fully, follow the steps 1 to 4 above.

Refreshing rechargeable battery

If the rechargeable battery seems to run down sooner than usual (maybe because of repetitive short-term charging and discharging), refresh the rechargeable battery two to three times by following the instructions below.

1. Disconnect the AC adaptor.
2. Play an audio CD repeatedly until the blinking mark “  ” appears and the power goes off.
•When all music finish playing, power will go off. Turn the power on and play an audio CD again.
3. Connect the AC adaptor, turn on the player and press  on the player until the mark “  ” disappears.
4. Charge the rechargeable battery until the mark “  ” appears and the power goes off.

Replacing rechargeable battery (option)

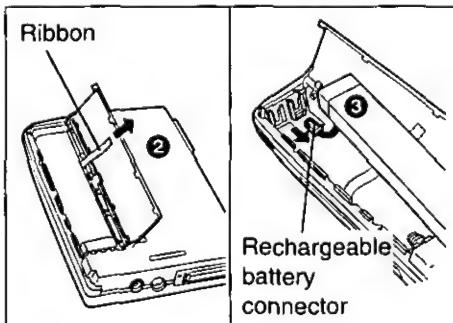
Replace the rechargeable battery:

- If the rechargeable battery quickly runs down even after refreshing (it has reached the end of its life).

Note:

- The rechargeable battery will charge approximately 300 times under optimum condition.

■ Removing the rechargeable battery:



- ① Open the battery cover.
- ② Pull the ribbon upward.
- ③ Disconnect the rechargeable battery connector by pulling its cable carefully, then remove the rechargeable battery.
- ④ Close the battery cover.

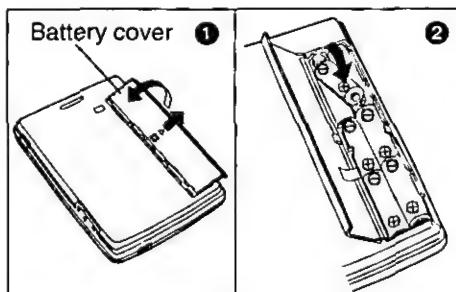
Using alkaline batteries (not supplied)

Six (6) "AA" size alkaline batteries are required.

Alkaline battery Precautions:

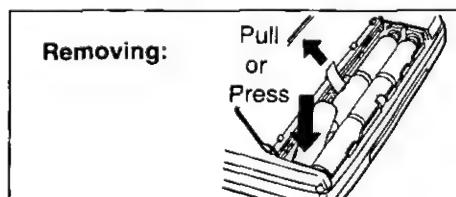
If improperly used, the batteries may leak and cause corrosion. Therefore, observe the following:

- Install batteries according to the diagram.
- Do not mix old and new batteries, or carbon and alkaline battery types.
- Remove all batteries when not using the player for extended periods.
- **Do not charge, short-circuit, disassemble, heat, or dispose of in fire.**



- ① Open the battery cover by sliding and lifting it up.
- ② Install six "AA" size batteries (not supplied) placing the ribbon underneath them. Make sure the polarities (+, -) match the diagram.
- ③ Close the battery cover.

■ Replacing the Batteries:



Replace the batteries when blinking mark " 

Notes:

- When using the alkaline battery, the data transfer rate may decrease and the access time may increase.
- If the blinking mark " 

Connection

Connecting player to a notebook computer

Note:

- Use only the supplied Sound/CD-ROM Interface Card and Interface cable.

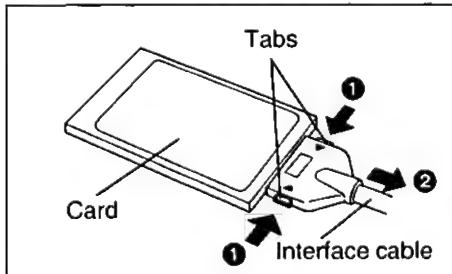
Make sure that your notebook computer and the player are off and the player's terminator is set to ON (P. 59).

- 1 Connect the cable ("►□◀" mark facing up) to the Sound/CD-ROM Interface Card.
- 2 Connect the cable to the player's SCSI interface connector.
- 3 Connect the cable ("◀" mark facing up) to the player's SOUND interface connector.
- 4 Insert the Sound/CD-ROM Interface Card ("Panasonic" side facing up) to the PCMCIA card slot until it stops.

Note:

- On some computers you might have to insert the card with the "Panasonic" side facing down. The card is keyed so it can only be installed in the correct direction.

■ Disconnecting Sound/CD-ROM Interface Card:



Pull the Interface cable while pressing the side tabs of the Interface cable.

Caution:

- Do not force the Interface cable, since this can damage the card or cable.

Connecting the microphone

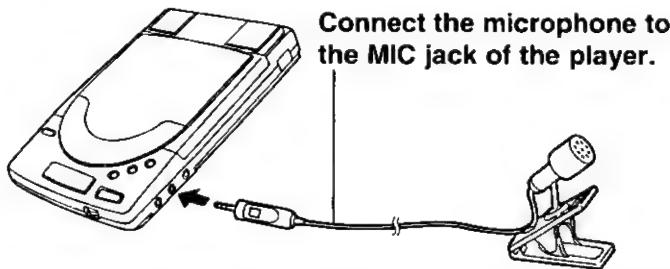
The supplied microphone can be used to make recordings of voices or other acoustical audio sources. For the detailed operation, refer to the "Audio Applications Operation" (☞ P. 30~49).

Caution:

- Use only the supplied microphone, otherwise proper operation is not guaranteed.

Note:

- Speakers may howl depending on the setting of the audio application. Please lower the player's VOLUME control or the MIC volume (☞ P. 26, 33, 49).



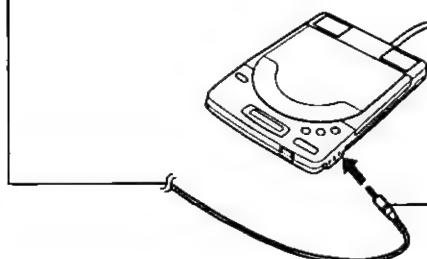
Connecting an audio connecting cable (not supplied)

When you wish to listen to/record the sound which comes out of the Line-out jack of an audio device, connect a commercially available audio connecting cable.

Note:

- Whenever you connect/disconnect an audio connecting cable, be sure that the volume of the player is set to the lowest level.

- 1 Connect one end of the audio connecting cable to the Line-out jack of an audio device.



- 2 Connect the other end of the audio connecting cable to the LINE IN jack of the player.

Connecting player to a desktop computer

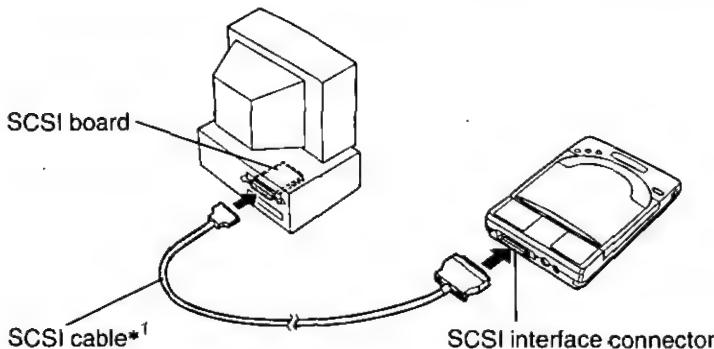
If your desktop computer has a PCMCIA card slot, you can connect the player to the computer by using the supplied Sound/CD-ROM Interface Card and Interface cable. Refer to "Connecting player to a notebook computer" (☞ P. 15).

Installing SCSI board (not supplied) onto a desktop computer

SCSI board and SCSI cable*¹ are required.

For further information, refer to your SCSI board manual.

Panasonic recommends either an Adaptec AHA-1542C or Future Domain TMC-1670, etc.
The SCSI board must be "ASPI" compatible.



Cautions:

- *¹ • Use a shielded SCSI cable of 1.5 m (4.9 ft.) or shorter.
- Plug half-pitch or full pitch end of SCSI cable into computer and the half-pitch end into the player.

Note:

- Audio data (WAVE and MIDI, etc.), except for CD-DA data, cannot be played back through the built-in speakers when connected to a desktop computer with a SCSI board installed. If you install the Sound board onto the computer, you can listen to audio data through the Line-out jack of the Sound board.

■ Daisy chain connection:

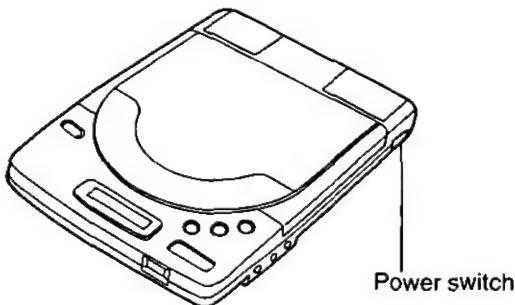
You can connect this player to other SCSI devices (up to seven devices). Make sure that each SCSI device has different SCSI ID number.

For setting the SCSI ID number and terminator of this player, refer to "SCSI ID Number and Terminator" (☞ P. 59).

Power On

Turn on the player by pressing the POWER switch, and then turn on the computer.

A blinking message "on" appears on the display of the player.



- To turn off the player, press the POWER switch again.

The display message(s) will disappear.

Note:

- If the player is not going to be used for an extended period, unplug the AC adaptor from both the player and AC outlet to save power consumption. (Approximately 2.5 W power is consumed when the player is OFF and the AC adaptor is connected.)

■ Power Save Function (except when charging the optional rechargeable battery):

The player enters the Sleep Mode under the following conditions to save power.

- When using with computer, and no command is sent to the player from the computer for more than 4 minutes.
- When using the player independently, CD is not being played, and no button of the player is pressed for more than 4 minutes.

During the Sleep Mode, the laser and spindle motor stop.

The player automatically re-starts when it receives a command from the computer or a button on the player is pressed.

Software Installation

Before installing software

The supplied Setup disk contains the drivers for this product and the Audio Applications software.

Before installing the software, make sure either of the following is installed.

- **Card Manager** (Card Services/Socket Services) [supplied with your computer]

—When using a computer with PCMCIA card slot.

For more information about Card Manager, refer to your computer manual.

Even if a Card Manager is not installed and your computer has PCMCIA Controller i82365 100% compatible LSI, a program (ASPI365.SYS) that will operate your CD-ROM will be automatically installed.

- **ASPI Manager** [mostly supplied with SCSI board]

—When using a desktop computer with SCSI board.

Note:

- You may find it convenient to install the software directly onto your C drive (hard disk).

System requirements

The Setup disk can be used only in an IBM or IBM compatible computer with a 3.5" floppy disk drive.

System requirements:

For Notebook Computer

- IBM or IBM Compatible Computer
- PCMCIA Type II Card Slot
 - PCMCIA Controller i82365 100% Compatible LSI or
 - IBM Card Service (PCMCIA 1.07, 2.00) or
 - SystemSoft (PCMCIA 2.01, 2.10) or
 - Phoenix PCMPLUS (PCMCIA 2.00, 2.01, 2.10) or CardTalk
- Windows 3.1, 3.11 or Windows 95
- 486 33 MHz or Faster Micro Processor
- 4 MB of available Hard Disk Space
- 8 MB of RAM Recommended

For Desktop Computer

- IBM and IBM Compatible Computer with SCSI Board including ASPI Manager (Adaptec AHA-1542C, Future Domain TMC-1670, etc.)
- Windows 3.1, 3.11 or Windows 95

Notes:

- This product may not be compatible with the notebook computer which has a built-in sound system device.
- If no sound is listened after the software installation under Windows 95, change "Preferred device" setting of Multimedia in Control Panel.

Making back-up copy

Before installing software, it is recommended that you make a back-up copy by referring to your computer's manual and store the original in a safe place.

Installing under Windows 3.1, 3.11

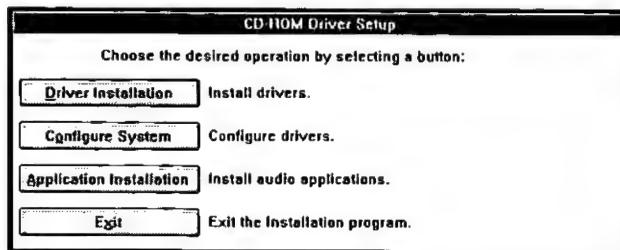
Make sure that you have connected the player to your computer (☞ P. 15, 17) and both the player and your computer are turned on (☞ P. 18).

Note:

- The desktop computer user who does not have a PCMCIA card slot can not install the Audio Applications software.

- 1 Start Windows 3.1, 3.11.**
- 2 Insert the supplied Setup disk into drive A (or B).**
- 3 Select "Run..." from the File menu of the Program Manager.**
- 4 Type A: (or B:)\SETUP and press **Enter**.**
"CD-ROM Driver Setup" window appears.
- 5 Click **Continue**.**

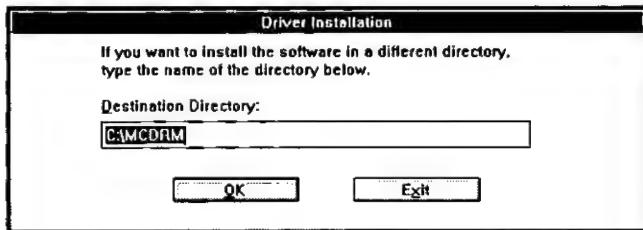
The following window appears.



- If you want to install the drivers, go to next step.
- If you want to change the previous settings, select "Configure System" and follow the instructions on computer.
- If you want to install Audio Applications software, select "Application Installation" and go to step 10 (☞ P. 23).
- If you want to exit the install program, select "Exit" and follow the instructions on computer.

6 Click [Driver Installation].

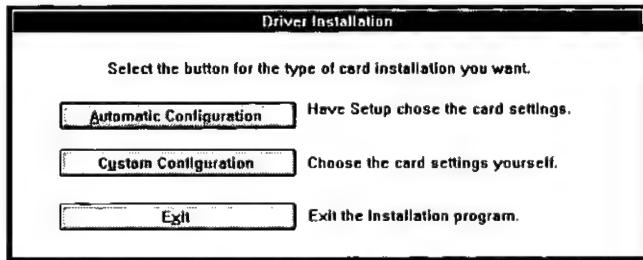
"Driver Installation" window appears.



The default directory is MCDRM. If you want to install the driver in a different directory, type the directory name and go to next step.

7 Click [OK].

The following window appears.

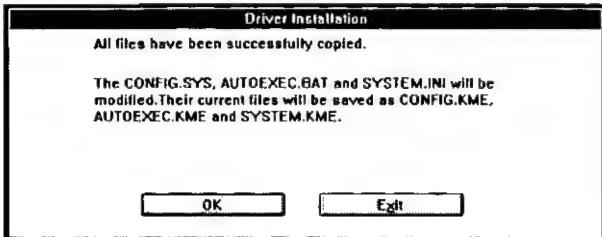


- Unless you need to configure the card settings yourself, select "Automatic Configuration" to install the hardware driver.
- If you encounter problems after installing software, select "Custom Configuration" and change the settings.
- If you want to exit the install program, select "Exit" and follow the instructions on computer.

Software Installation

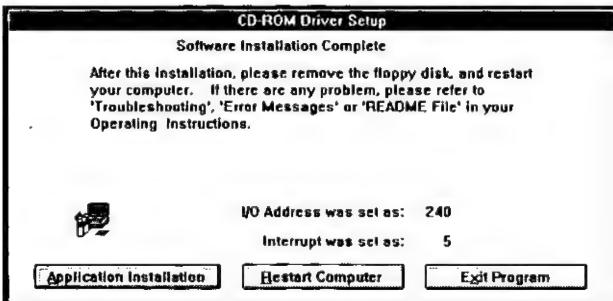
8 Click **Automatic Configuration.**

After copying files, the following message appears.



9 Click **OK.**

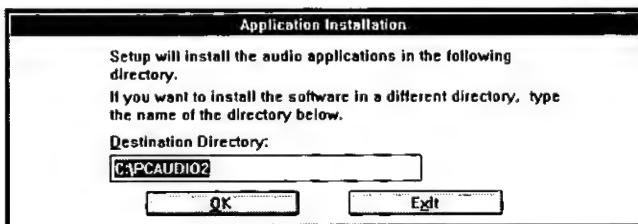
"CD-ROM Driver Setup" window appears.



- If you want to install the Audio Applications software, go to next step.
- If you want to exit the install program, select "Exit Program", exit the Windows, remove the Setup disk and then restart your computer.

10 Click Application Installation.

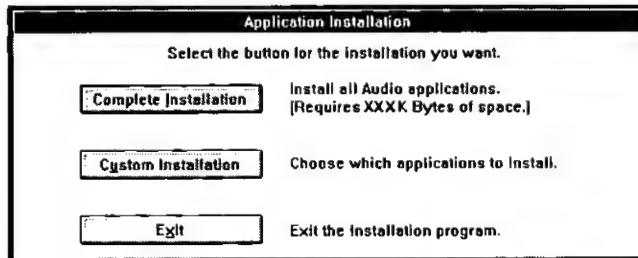
"Application Installation" window appears.



The default directory is PCAUDIO2. If you want to install the Audio Applications in a different directory, type the directory name, and go to next step.

11 Click OK.

The following window appears.



- If you want to install all Audio Applications software, go to next step.
- If you want to select some Audio Applications, select "Custom Installation" and follow the instructions on computer.
- If you want to exit the install program, select "Exit" and follow the instructions on computer.

Software Installation

12 Click **Complete Installation.**

After copying files, "CD-ROM Driver Setup" window appears.



13 Remove the Setup disk and click **Restart Computer.**

After installing the software if you start Windows, you are ready to enjoy your applications including the Audio Applications. For details about the audio application's operation, refer to the "Audio Applications Operation" (☞ P. 30~49).

Insertion/Removal with Power On (For DOS/Windows 3.1, 3.11)

If your computer has a Card Service and ASPISMGR.SYS is being used, Sound/CD-ROM Interface Card can be removed or inserted from/into the PCMCIA card slot of computer without turning off your computer.

However, when you start running your computer, make sure that Sound/CD-ROM Interface Card is inserted into the PCMCIA card slot and the player is on. If ASPIS365.SYS and ASPISDBK.SYS are being used, Insertion/Removal with power on is not possible.

Note:

- If your computer has more than one slot, and if you want to re-insert the Sound/CD-ROM Interface Card, make sure to insert it into the same slot it was inserted before.

Installing under Windows 95

Under Windows 95, if the PC Card (PCMCIA) device is setup as 16-bit Driver, the system's stability may be affected and speed may become slower.

Please follow the steps below to make sure that PC Card (PCMCIA) device of Windows 95 is setup as 32-bit Driver.

Before performing the following instructions, please do not insert the Sound/CD-ROM Interface Card into the PCMCIA card slot.

- 1 Turn on your computer.** Windows 95 automatically starts.
- 2 Click [Start], point to Settings and then click the Control Panel icon.**
- 3 Double-click the PC Card (PCMCIA) icon.**
- 4A If the "PC Card (PCMCIA) Wizard" appears, follow these instructions to setup the 32-bit Driver.**
 - ① Select "No" and then click [Next>].**
 - ② Select "No" and then click [Next>].**
 - ③ Click [Finish]. "System Setting Change" window will appear.**
 - ④ Click [Yes] to exit Windows 95.**
 - ⑤ Restart your computer.** The 32-bit Driver will be setup and go to step 5.
- 4B If the "PC Card (PCMCIA) Properties" appears and the 32-bit Driver has been setup, click [Cancel], and go to step 5.**
- 5 Make sure that the Interface cable is connected to the Sound/CD-ROM Interface Card and to the player. Turn on the player (☞ P. 18) and then insert the Sound/CD-ROM Interface Card to your computer's PCMCIA card slot (☞ P. 15, step 4).**

"New Hardware Found" window appears only when the inserted card has not previously registered in Windows 95.
- 6 Click [OK].**

"Driver from disk provided by hardware manufacturer" is selected and "Install From Disk" window appears.
- 7 Insert the supplied Setup disk into drive A (or B), and click [OK].**

"New Hardware Found" window appears again.

8 Click [OK].

"Install From Disk" window appears again.

9 Click [OK].

"New Hardware Found" window appears again.

10 Click [OK].

"Install From Disk" window appears again.

11 Click [OK].

The initial screen appears and the driver has been installed.

12 Remove the Setup disk.

Using the Sound Recorder and Volume Control under Windows 95

You do not need to install Audio Applications Software under Windows 95.

Please use the Sound Recorder and Volume Control in your Windows 95, in the following cases,

- when you adjust the computer sound of CD-ROM and the sound of an audio CD played back with the player.
- when you record, store and playback voice, music and FM sound on your computer.

To start the Sound Recorder or Volume Control, click [Start], point the Programs, point the Accessories, point the Multimedia and then click the Sound Recorder or Volume Control.

Notes:

- If the volume of Mic level is set too high, the built-in speakers may howl. Please lower the Microphone volume or the player's VOLUME control.
- Use "Line-In" in the Volume Control window to adjust the volume and stereo balance, and controls the sound of audio CD inserted in the player or the audio source connected to LINE IN jack of the player.
- When you play the audio source connected to the LINE IN jack of the player while playing audio CD with your computer connected to the player, the speakers give priority to the audio source.
- The Adjust volume for "Others" in the Properties of Volume Control and "CD Audio", "AuxB" and "PC Speaker" in the dialog box can not be used by this product.

Plug & Play (for Windows 95)

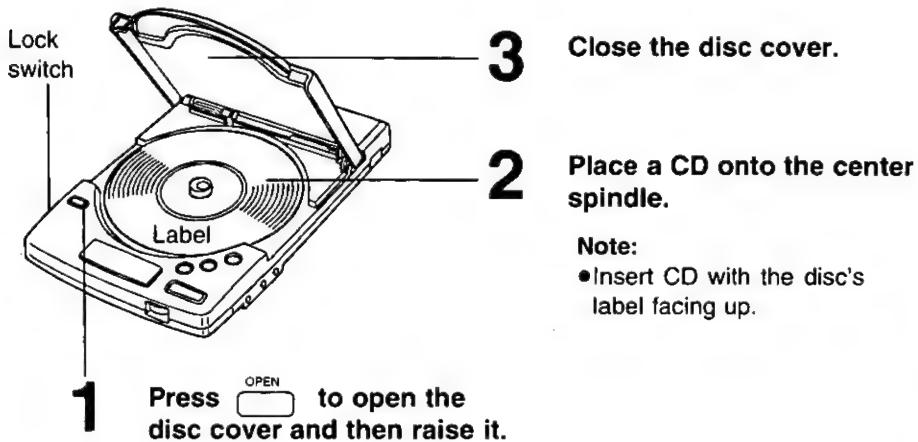
Windows 95 supports Plug & Play function as the new feature.

This Sound/CD-ROM Interface Card supports this feature. You can plug/remove this card in/from your computer. When you turn on your computer, Windows recognizes and sets up your hardware automatically.

Inserting/Removing a CD

Inserting a CD

To insert a CD, follow the instructions below.

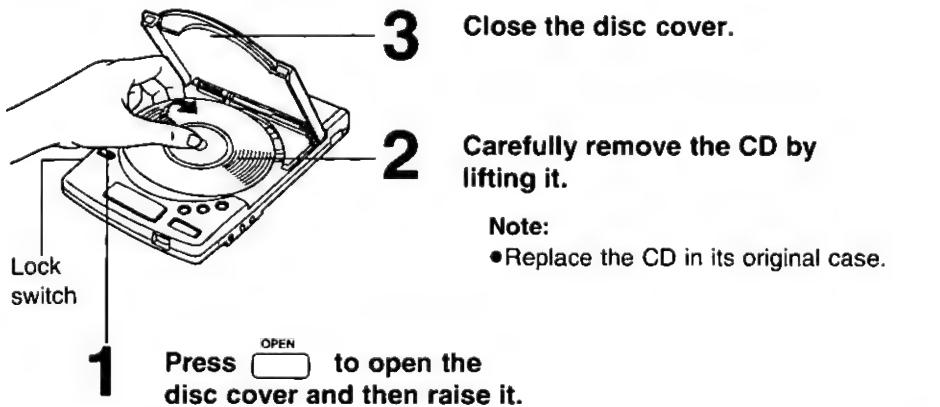


Note:

- To transport the player, remove the CD and slide the Lock switch toward the rear of the player, otherwise the disc cover may open and the player or the CD may get damaged.

Removing a CD

To remove a CD, follow the instructions below. Make sure that a blinking message "BUSY" does not appear on the player's display, and the Lock switch is not slid toward the rear of the player.



Using the Player with a Computer

After the software installation (☞ P. 19), you are ready to play game/photo/audio/video CDs.

Playing a CD-ROM

When connected to a notebook/desktop computer which has PCMCIA card slot, you can listen to the computer sound of CD-ROM with the built-in speakers.

- In order to hear the sound files of Multimedia titles, the desktop computer needs to have a Sound board, such as Sound Blaster [Creative Technology Ltd.], etc., installed.
- To play VIDEO CD or CD-I, commercial MPEG Boards [REAL Magic LITE (SIGMA DESIGNS Ltd.) is recommended] is required on the computer side.

Note:

- Some CD-ROMs are soundless.

Playing an audio CD

To operate audio CDs from the computer, install **audio CD control software** (not supplied).

For DOS users

- Only after running Windows 3.1, 3.11, if you install audio CD control software, you can listen to an audio CD with the built-in speakers or the PHONES jack.

For Windows 3.1, 3.11 users

- Use the Media Player in Accessories.
If it is not available, be sure to add "[MCI] CD Audio" at Drivers in Control Panel.

For Windows 95 users

- Use the Media Player or CD Player in Multimedia folder.
If they are not available, be sure to add "Add/Remove Programs" in Control Panel.

Note:

- While playing an audio CD with your computer, buttons  ,  ,  and  on the player cannot be used.

Using as a Personal Audio CD Player

If you are using batteries, you can listen to music under stable conditions, without the AC adaptor. It is recommended not to play an audio CD while walking or jogging.

If you want to play an audio CD without disconnecting from your computer, be sure to open and close the disc cover after you start running Windows 3.1, 3.11 before playing to guarantee the player's buttons function properly.

Caution:

- It is not safe to listen to headphones while driving a car.

Be sure the VOLUME control is set to 2~4 before playing an audio CD.

- 1 Insert an audio CD (☞ P. 27).
- 2 Press POWER switch to turn on the player.
- 3 Press . While operating audio CDs, the following display appears.


01
00:00
Elapsed time

Audio CD's track number
- 4 Adjust the VOLUME control.

Note:

- You can listen to the music with the built-in speakers or your headphones (not supplied) connected into the PHONES jack.

Button	Function
	Starts/pauses playing an audio CD.
	Skips to the next track by pressing once.
	Continues skipping tracks if you hold down.
	Returns to the beginning of the track being played by pressing once.
	Skips to the previous track by pressing once when the elapsed time is 00:00.
	Continues reversing tracks if you hold down.
	Stops playing an audio CD.

Introduction

Under Windows 3.1, 3.11 only, the Audio Applications enable you to record, store, and playback voice, music, and FM sound on your computer. These applications are designed to enhance communication and improve productivity by incorporating audio into your daily use of the computer.

■ *Audio Applications Overview (for Windows 3.1, 3.11 user only):*

The following table shows the Audio Applications and each function.

Icon	Application name	Function
	Volume Control	Regulates the volume and stereo balance of the built-in speakers or headphones connected to the PHONES jack.
	Mixer	Combines signals from multiple sources for built-in speakers or headphones connected to the PHONES jack.
	Audio Recorder	Records, stores and playsbacks voice, music, and FM sound in wave (.WAV) file format.
	Extended Recorder	Records, stores and playsbacks voice, music and FM sound like the Audio Recorder. Records and stores audio files directly to the hard disk unlike the Audio Recorder.
	Recording Control	Regulates the recording level and stereo balance of multiple sources for a recording application.



Volume Control

The Volume Control enables you to regulate the volume and stereo balance. You can use the Volume Control with the Audio Recorder during playback. If you are playing multiple sources, you can use the Mixer to combine them, with the Volume Control as a master regulator.

Starting the Volume Control

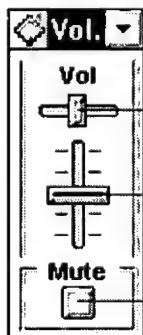
Open the Audio Applications program group and double-click the Volume Control icon,

or

from the Audio Recorder Options menu or the Mixer menu, select the Volume Control command.

The Volume Control window appears.

Using the Volume Control Window



Stereo balance bar

Adjusts the stereo balance of the built-in speakers or headphones connected to the PHONE jack by sliding this bar left or right.

Output level bar

Adjusts the volume of the built-in speakers or headphones connected to the PHONE jack by sliding this bar up or down.

Mute button

Turns the sound off/on by clicking this button.

■ Menu Commands:

Command	Description
Always On Top	Displays the Volume Control on top of other windows.
Mixer	Displays the Mixer window if you want to mix the playing of sounds from several sources.
Help	Displays information about how to use the Volume Control.
About Volume Control	Gives the version number and copyright information.



Mixer

The Mixer enables you to combine signals from several audio sources during playback, with control over the volume and stereo balance of each source.

When you use the Audio Recorder to play an audio file, you can open the Mixer to combine the audio from the file with audio from other sources.

The Volume Control works in tandem with the Mixer. The Volume Control acts as a master regulator of the combined signal from the Mixer.

Starting the Mixer

Open the Audio Applications program group and double-click the Mixer icon,

or

select Mixer from the Audio Recorder Options menu or the Volume Control menu.

The Mixer window appears.

Using the Mixer Window

Notes:

- If the volume of Mic level is set too high, the built-in speakers may howl. Please lower the Mic volume or the player's VOLUME control.
- When you play the audio source connected to the LINE IN jack of the player while playing audio CD with your computer connected to the player, the speakers give priority to the audio source.

Stereo balance bar

Adjusts the stereo balance of a source by sliding this bar left or right.

Output level bar

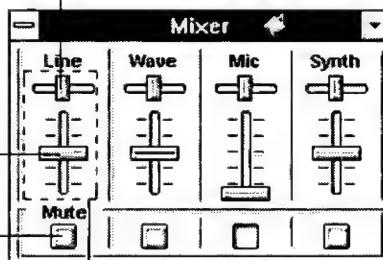
Adjusts the volume of a source by sliding this bar up or down.

Mute button

Turns off/on the audio from any source by clicking this button.

Line

Adjusts the volume and the stereo balance, and controls the sound of audio CD inserted in the player or the audio source connected to LINE IN jack of the player.



■ Menu Commands:

Menu	Description
Always On Top	Displays the Mixer on top of other windows.
Volume Control	Displays the Volume Control at the left side of the Mixer.
Help	Displays information about how to use the Mixer.
About Mixer	Gives the version number and copyright information.

Adding the Volume Control

The Volume Control serves as a master control to the Mixer. To display the Volume Control window, select **Volume Control** from the menu.



Audio Recorder

The Audio Recorder enables you to record, store and playback voice, music, and FM sound. It provides settings for sound attributes such as mono/stereo, format and sampling rate. You can use it to embed sound objects in documents created in applications that support object linking and embedding (OLE). The Audio Recorder's record, edit and playback capabilities are compatible with the Windows Sound Recorder and other recorders that record and playback in the PCM format.

The Audio Recorder can record to and playback from wave (.WAV) file formats.

Starting the Audio Recorder

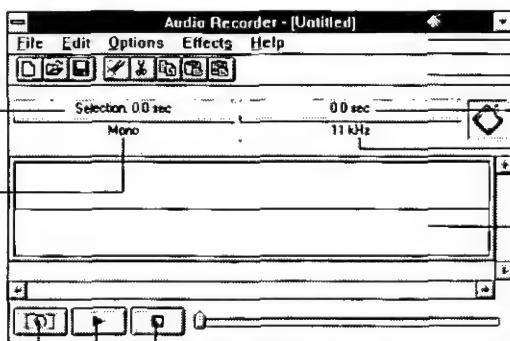
Open the Audio Applications program group and double-click the Audio Recorder icon.

The Audio Recorder window appears.

Using the Audio Recorder Window

The length of a selected part of the current audio file (second)

Mono (normal) or Stereo



Menu bar (☞ P. 35)

Toolbar (☞ P. 37)

Total time (second)

Sampling rate (kilohertz)

Shows the waveform of the current audio file (☞ P. 39)

STOP button

Stops recording/playback by clicking this button.

PLAY button

Starts playback by clicking this button.

RECORD button

Starts recording by clicking this button.

■ Menu commands:

The following table shows the menus and each description on Menu bar.

Menu	Command	Description
File	New	Creates a new audio file. When you start the Audio Recorder, a new file is created automatically.
	Open	Loads an existing audio file.
	Save	Stores the current audio file to disk under its existing file name.
	Save As	Allows changing the name of the audio file before saving it. Selecting this command displays the Save As Sound File dialog box.
	Revert	Restores the previously saved version of the current audio file.
	Properties	Displays the Properties dialog box, from which you can see and change properties of the current audio file.
	Exit	Closes the Audio Recorder window.
Edit	Undo	Reverses the last change you made to the current audio file.
	Cut	Removes the selected audio portion and stores it on the Clipboard.
	Copy	Copies the selected audio portion to the Clipboard without removing it.
	Paste	Inserts the Clipboard audio at the cursor, pushing other material ahead. If an audio portion is selected, the clipboard audio will be replaced with the selected audio portion.
	Paste Mix	Mixes the Clipboard audio with the audio beginning at the cursor.
	Delete	Removes the selected portion of the recording. To recover a deleted sound, use the Undo command immediately after using Delete.
	Mute	Silences the selected portion of the audio file, reducing the amplitude of that portion of the waveform to zero. To recover a muted sound, use Undo immediately after using Mute.
	Select All	Select the entire audio file.

Audio Recorder

Menu	Command	Description
Edit	Zoom In	Displays a smaller unit of time.
	Zoom Out	Displays a larger unit of time.
	Insert File	Displays the Insert File dialog box. From here you select an audio file to be inserted into the current file at the cursor. If audio is selected, the inserted audio file replaces the selected audio. The inserted file will take on the properties of the host file.
	Mix with File	Displays the Mix With File dialog box. From here you select an audio file to be mixed with the current file, beginning at the cursor.
Options * ¹	Auto Repeat	Repeats the file endlessly when play is pushed.
	Volume Control	Adjusts the whole volume of the sound being played.
	Recording Control	Mixes audio from several sources in a recording.
	Mixer	Combines audio from several sources during playback.
	Always On Top	Displays the Audio Recorder on top of other windows.
Effects * ²	Normalize	Amplifies the selected audio to the maximum volume possible without distortion.
	Volume	Increases or decreases the amplitude of the selected audio by 25%.
	Speed	Changes the selected audio to be 100% faster or slower.
	Fade	Causes the selected audio to Fade In from silence to its highest amplitude, or Fade Out from its highest amplitude to silence.
	Echo	Displays the Echo Rate dialog box. From here you set the echo delay and echo volume for the selected audio.
	Reverse	Flips the selected audio backwards, so the end becomes the beginning and the beginning becomes the end.
	Contents	Displays a list of topics you can select for information on the Audio Recorder features.
Help	About Audio Recorder	Gives the version number and copyright information.

*¹ Options menu commands enable you to display the Volume Control, Recording Control, and Mixer windows.

*² Effects commands change the waveform of the audio you have selected. If there is no selection, the entire file is affected. To change the audio back to what it was before you used an Effects command, select Undo from the Edit menu before using any other command.

■ Toolbar:

For your convenience, eight often-used menu commands are also available as toolbar buttons at the top of the Audio Recorder window. Here is the meaning of each button.



New



Open



Save



Undo



Cut



Copy



Paste



Paste Mix

Making a Recording

Note:

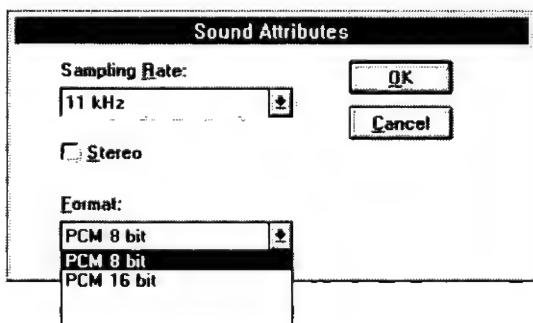
- While making a recording if the volume of Mic level is set too high or the Record Monitor in the Recording Control is set to on, the built-in speakers may howl. Please lower the Mic volume or the player's VOLUME control.

The following recording procedure is for one time recording. Whenever you want to make a recording, perform the following steps.

1 Select New from the File menu.

The Sound Attributes dialog box appears.

2 Select settings for Sampling Rate, Stereo (on or off), and Format.



- Select one of the PCM (uncompressed) formats if you want the highest sound quality, or if you wish to edit or modify the recording with Effects commands before you save it.

3 Click [OK], [●] and speak into the microphone or turn on the line-in source.

4 Click [■] to end the recording.

- Once you have clicked [■], you must perform steps 1~4 for any subsequent recording.

5 Select Save As from the File menu.

The Save As dialog box appears.

In the Save As dialog box, select a directory location and type a name for the audio file, and click **Read Only** if you want to save the file as read only. This prevents the accidental recording over of a file at a later date.

You can use the Recording Control window to regulate the mix of audio from several sources. To display this window, select Recording Control from the Options menu. If you do not open the Recording Control window, the Audio Recorder uses the source settings used previously. See the Recording Control section for more information (☞ P. 48).

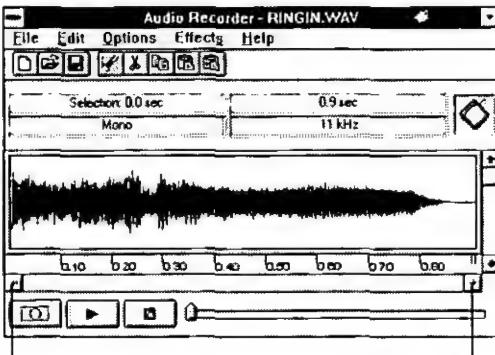
Playing an Audio File

1 Load an audio file into the Audio Recorder.

It can be a recording you have made, or use the Open command (File menu) to load a file stored on disk.

2 Click ▶ to hear the audio file.

The file will play to the end unless you interrupt it by pressing ■.



Zooms out the waveform by clicking ↑.

Zooms in the waveform by clicking ↓.

Shows more of the waveform behind the current display by clicking ←.

Shows more of the waveform ahead the current display by clicking →.

■ Other functions for playing an Audio file:

Function	Operation
Playing a portion of the audio file	Select the portion in the waveform display by using the mouse, then click ▶.
Canceling the selected portion	Click anywhere in the waveform display.
Selecting the entire audio file	Double-click anywhere in the waveform display.
Regulating the sound level/stereo balance	Use Volume Control from the Options menu (☞ P. 31).
Playing with other sound sources	Use Mixer from Options menu (☞ P. 32).

Editing an Audio File

Use the **Open** command (File menu) to load an audio file from disk to the Audio Recorder. You can also edit a file you just recorded.

The following table shows the functions and each operation for editing an Audio File.

Function	Operation
Deleting an audio section	<ol style="list-style-type: none">With the mouse, select the portion of the audio data to be deleted.Press Del, or select the Delete command. The selected audio disappears, joining the audio before and after it. If you wish to save the deleted section, use the Cut command instead of Delete. <p>To restore a deleted audio section, select Undo before making any other changes to the audio file.</p>
Muting an audio section	<ol style="list-style-type: none">Select the waveform of the audio to be muted.Select Mute from the Edit menu. The selected audio is silenced; it is reduced to a flat line. <p>To restore a muted audio section, select Undo before making any other changes to the audio file.</p>
Moving/copying an audio section	<ol style="list-style-type: none">Select the portion of the audio data to be moved or copied.Click the Cut button to erase the selected audio and place it on the Clipboard, or click the Copy button to leave the selected audio as is while copying it to the Clipboard.Place the cursor where you want the Clipboard material to appear and click the Paste button. <p>To restore a moved/copied audio section, select Undo before making any other changes to the audio file.</p>
Recording new audio and placing it on the Clipboard	<ol style="list-style-type: none">Place the cursor at the end of the waveform display, or play the file to the end.With input the source(s) ready, click  to record new material. Click  to finish.Use the mouse to select the section just recorded, then click the Cut or Copy button to put that audio section onto the Clipboard.

Function	Operation
Inserting audio from the Clipboard	<p>1. Place the cursor at the point in the waveform display where you want to insert audio from the Clipboard.</p> <p>2. Click the Paste button. The Clipboard audio waveform appears at the cursor. No audio is erased.</p> <p>To restore an inserted audio section, select Undo before making any other changes to the audio file.</p>
Replacing the selected audio with Clipboard audio	<p>1. Use the mouse to select the waveform of the audio to be replaced.</p> <p>2. Click the Paste button. The Clipboard audio appears in place of the selected audio.</p> <p>To restore a replaced audio section, select Undo before making any other changes to the audio file.</p>
Mixing Clipboard audio with the selected audio	<p>1. Place the cursor at the beginning of the audio to be mixed, or select a section of audio to be mixed.</p> <p>2. Click the Paste Mix button. The Clipboard audio is combined with the audio after the cursor. If a section of audio was selected, the Clipboard audio is combined with the selected audio until the end of either the Clipboard or the selected audio.</p> <p>To restore a mixed audio section, select Undo before making any other changes to the audio file.</p>
Inserting audio file, or replacing a selected audio segment with audio file	<p>1. Place the cursor at the point in the waveform display where you want to insert an audio file, or select the audio you want to replace with an audio file.</p> <p>2. From the Edit menu, select Insert File to display the Insert File dialog box. Then select an audio file to insert into the current file. If audio is selected, the inserted audio file replaces the selected audio.</p> <p>To restore an inserted/replaced audio section, select Undo before making any other changes to the audio file.</p>
Mixing audio from a file	<p>1. Place the cursor at the beginning of the audio to be mixed.</p> <p>2. From the Edit menu, select Mix with File to display the Mix With File dialog box. Then select an audio file to combine with the current file, beginning at the cursor.</p> <p>To restore a mixed audio section, select Undo before making any other changes to the audio file.</p>

■ Editing audio file with Effects commands:

The Effects commands are described in the section “**Menu commands**” (☞ P. 36). These commands alter the audio you have selected. If there is no selection, the entire file is affected.

Adding Sound to a Document

To embed audio files in documents follow the instructions below.

- 1 Open a document in the appropriate Windows application.**
- 2 Load an audio file from disk to the Audio Recorder, or use an audio file you just recorded.**
- 3 Move the cursor to the icon at the top right of the Audio Recorder. The cursor changes into a hand. Hold the mouse button and drag the icon to the document window, then release the button at the place you want the audio icon to appear.**
- 4 To play an audio object in a document, double-click its icon.**

You can also add audio to a document from the document’s application.

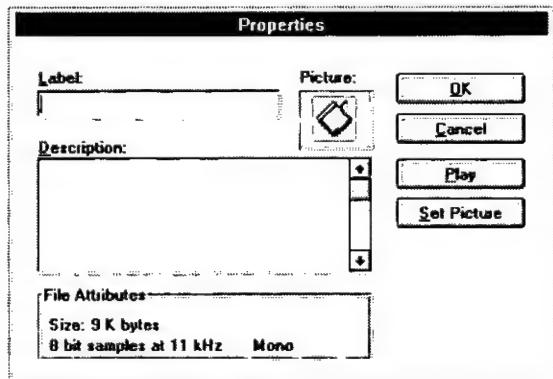
Place the cursor where you want the audio icon to appear, select the application’s command for inserting an object, then select Audio Recorder in the list box. Refer to the OLE section of Windows User Guide for more information.

Changing an Audio File's Properties

An audio file contains more than audio data. You can attach a title, description, and an icon to an audio file.

1 Select Properties from the File menu.

The Properties dialog box appears.



2 In this dialog box, place the cursor in the Label or Description area and add or change the label or description for the audio file.

Click **Play** to hear the audio file.

The Audio Recorder assigns a default picture of the **Audiodrive** logo to each audio file. To select your own icon for a given sound file, click the **Set Picture** button. The Set Picture dialog box appears.

From here, select the picture to appear with the audio file. It can be any graphic contained in a bitmap (.BMP or .DIB), wave (.WAV), icon (.ICO), executable (.EXE) or library (.DLL) file.

The picture you select will appear in the Audio Recorder. It will also appear in any document in which you embed the audio file.

3 When you are finished, click **OK**.



Extended Recorder

The Extended Recorder is designed as a tool for recording meetings and dictation. Like the Audio Recorder, the Extended Recorder enables you to record, store, and playback voice, music, and FM sound. Unlike the Audio Recorder, the Extended Recorder records and stores in real-time to your hard disk. Your recording time is limited only by the amount of hard disk space you have available.

The Extended Recorder can record to and playback from PCM which is the Microsoft Windows audio file format.

The Extended Recorder provides a choice of linear PCM (8 or 16 bits).

■ **System requirements:**

Recording or playing back with a high sampling rate on the Extended Recorder can be a lot of work for your computer's CPU. A lower sampling rate and/or number of bits can produce a more than adequate recording without overtaxing your system.

If you wish to use 16-bit stereo at 44 kHz for recording or playback, we recommend that your computer have the following capabilities:

- a 486 DX with an internal clock speed of 50 MHz or more
- 8 MB RAM or more
- an average hard disk access time of 15 ms or faster

Computers without these capabilities may slow down drastically or lose data if you attempt 16-bit stereo, 44 kHz recording or playback.

Starting the Extended Recorder

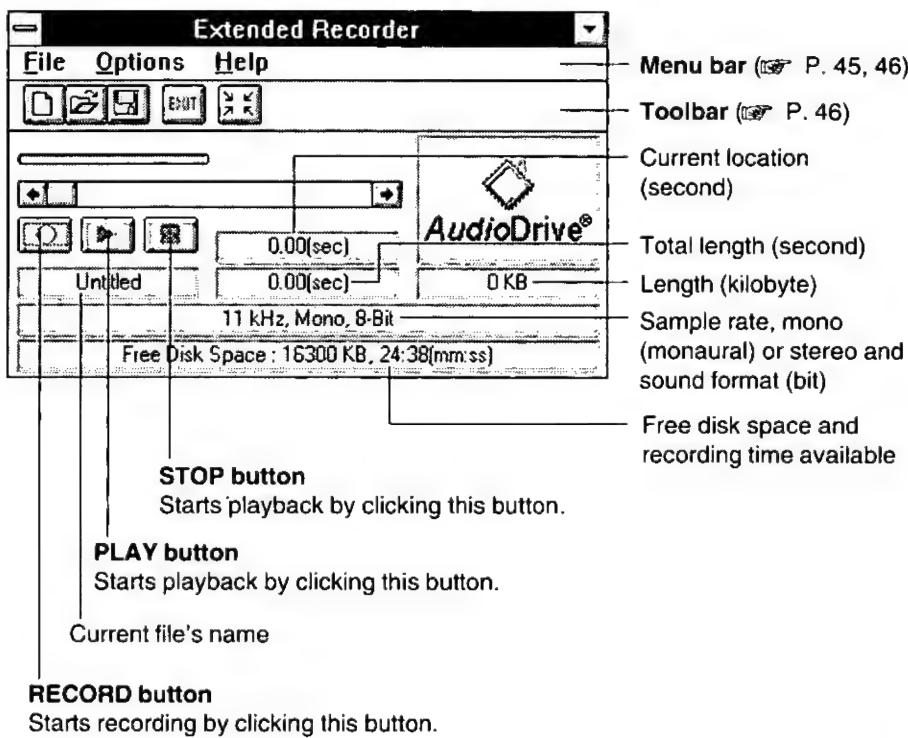
Open the Audio Applications program group and double-click the Extended Recorder icon.

The Extended Recorder window appears.

To expand the window so it shows more information, select **Expanded View** in the Options menu.

Using the Extended Recorder Window

Here is the expanded view of the Extended Recorder window.



■ Menu Commands:

Menu	Command	Description
File	New	Creates a new audio file. When you start the Extended Recorder, a new file is created automatically. New opens the Sound Attributes dialog box, enabling you to set the sampling rate, mono or stereo, and sound format.
	Open	Displays the Open dialog box, from which you can select an audio file to bring into the Extended Recorder.
	Save As	Saves the audio file with the name and in the location you specify. You can also select to save the file as read only.
	Exit	Closes the Extended Recorder.

Extended Recorder

Menu	Command	Description
Options	Auto Repeat	Repeats the file endlessly when play is pushed.
	Temp. File Directory	Enables you to set the directory location for the temporary file that the Extended Recorder creates while recording. When you save an audio file, this temporary file is copied to the name and location you specify.
	Voice Activation	Displays the Voice Activation dialog box and pauses the recording when there is no input from the recording source. To turn voice activation on, click the Pause Recording After check box, then set the Seconds of Silence field. The recording will pause after the number of seconds of silence set in the Seconds of Silence field. Recording will resume when sound from the recording source resumes.
	Expanded View	Displays the expanded window.
Help	Contents	Displays a list of topics you can select for information on the Extended Recorder features.
	About Extended Recorder	Gives the version number and copyright information.

■ Toolbar:

For your convenience, five often-used menu commands are also available as toolbar buttons at the top the Extended Recorder window. Here is the meaning of each button.



New



Open



Save



Exit



Expanded View

- When the Expanded View is selected,  (normal View) is displayed.

Making a Recording

Note:

- While making a recording if the volume of Mic level is set too high or the Record Monitor in the Recording Control is set to on, the built-in speakers may howl. Please lower the Mic volume or the player's VOLUME control.

The following recording procedure is for one time recording. Whenever you want to make a recording, perform the following steps.

1 Select New from the File menu.

New opens the Sound Attributes dialog box, where you can set the sample rate, the sound format, and whether to record in mono or stereo. After you set the attributes, click **OK**.

2 Click , and speak into the microphone or turn on the line-in source.**3 Click  to end the recording.**

•Once you have clicked , you must perform steps 1~3 for any subsequent recording.

4 Select Save As from the File menu.

In the Save As dialog box, select a directory location and type a name for the audio file, and click Read Only if you want to save the file as read only. This prevents the accidental recording over of a file at a later date. Click **OK** to save it.

Reference:

Use Volume Control (☞ P. 31), Mixer (☞ P. 32) or Recording Control (☞ P. 48) to regulate the sound level of recording or playback.



Recording Control

The Recording Control enables you to regulate the recording level and stereo balance from multiple sources. You can use the Recording Control with the Audio Recorder or Extended Recorder during recording.

Starting the Recording Control

Open the Audio Applications program group and double-click the Recording Control icon,

or

from the Audio Recorder or Extended Recorder Options menu, select the Recording Control command.

The Recording Control window appears.

Using the Recording Control Window

The Recording Control displays recording level and stereo balance controls for each of your computer's available hardware sources.

Master

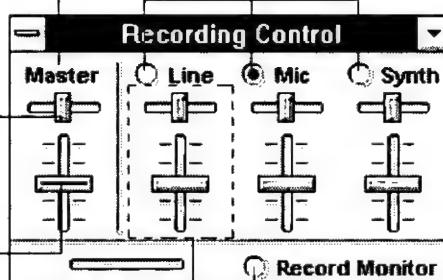
Adjusts the overall gain and balance of a mix.

Line, Mic, Synth

Selects a recording source (Line, Mic or Synth) by clicking the circle in front of its name.

Stereo balance bar

Adjusts the stereo balance of any source by sliding this bar left or right.



Recording level bar

Adjusts the recording level of a source by sliding this bar up or down.

Line

Adjusts the recording level and the stereo balance, and controls the sound of audio CD inserted in the player or the audio source connected to LINE IN jack of the player.

Record Monitor

Monitors recording in progress by clicking this circle.

Note:

- When you play the audio source connected to the LINE IN jack of the player while playing audio CD with your computer connected to the player, the speakers give priority to the audio source.

■ Menu Commands:

Command	Description
Always On Top	Displays the Recording Control on top of other windows.
Help	Displays information about how to use the Recording Control.
About Recording Control	Gives the version number and copyright information.

Error Messages on Computer

When installing the software

Message	Solution
The directory you typed is invalid. Please type a full path with drive letter; for example "C:\MCDRM".	Use less than eight characters. Use only valid characters (refer to the DOS manual).
Could not find the file : [Filename] Please type in the directory to look for this file.	File indicated in [Filename] is not found. Set the directory containing this file.
PCMCIA Controller is not found. You can install only drivers. Do you continue this installation?	Make sure that your computer has PCMCIA slot. Make sure that connection between your computer and card slot board has been made properly. You cannot install Audio Applications software onto a desktop computer which does not have PCMCIA card slot.

When restart the computer after installing software

Refer to the following items of the README File (☞ P. 51).

1. ASPI Manager
2. CD-ROM Device Driver
3. MSCDEX.EXE

README File

The README File on the supplied Setup disk contains additional information on system troubleshooting and it is copied to the hard disk (normally to C:\MCDRM) during installation, except Windows 95.

1. ASPI Manager
2. CD-ROM Device Driver
3. MSCDEX.EXE
4. Error Messages when installing software
5. Sample CONFIG.SYS Files
6. I/O Base Address
7. Supplemental Troubleshooting Guide

Read or print this file if you have difficulty in installing the CD-ROM drive.

Viewing the README.TXT File in DOS

- 1 At the DOS prompt (C:\), type MORE <MCDRM\README.TXT**
- 2 Press **[Enter]**.**

Viewing the README.TXT File in Windows 3.1, 3.11

- 1 Double-click the Notepad icon of Accessories.**
- 2 Select "Open" from the File menu.**
- 3 Double-click the directory name.
(Normally it is C:\MCDRM)**
- 4 Select the file name "README.TXT".**
- 5 Click **[OK]**.**

Viewing the README.TXT File in Windows 95

When installing under Windows 95, README File is not automatically copied to the hard disk. To view the file, follow the instructions below.

- 1 Double-click the My Computer icon.**
- 2 Insert the supplied Setup disk.**
- 3 Double-click the 3½ Floppy icon.**
- 4 Double-click the Readme icon.**

Troubleshooting

When trouble occurs, check the following points before returning the player for service.

Trouble	Possible Cause	Solution
Turn on the POWER switch, but nothing appears on the display.	AC adaptor is not plugged into the outlet or DC IN jack correctly.	Plug in the AC adaptor correctly (☞ P. 11).
	The alkaline batteries or rechargeable battery are/is not installed correctly, or dead.	Install the alkaline batteries/rechargeable battery properly, charge the rechargeable battery or replace with new batteries (☞ P. 11~14).
AC adaptor is connected/rechargeable battery or alkaline batteries is/are installed, but buttons/POWER switch of player do not function.		Press RESET switch located at the bottom by using a pointed object like a pen.
Disc cover can not be opened.	The Lock switch is slid toward the rear of the player.	Slide the Lock switch to opposite direction.
The optional rechargeable battery runs down too soon.	The rechargeable battery capacity has been reduced and the battery life has been shortened by being charged too often after using for short periods.	Refresh the rechargeable battery (☞ P. 13). If the battery runs down quickly even after refreshing, replace with new one.
The optional rechargeable battery can not be charged.	AC adaptor is not connected, the rechargeable battery is not installed or POWER switch of the player is not on.	Connect the AC adaptor, install the rechargeable battery (☞ P. 11) or turn on the POWER switch of the player.
The data of CD-ROM is not transmitted to your computer.	The Interface cable or Sound/CD-ROM Interface Card is not connected to the player or to the computer properly.	Properly connect the Interface cable or Sound/CD-ROM Interface Card (☞ P. 15).
	The SCSI cable is not connected to the player or to the desktop computer properly.	Properly connect the SCSI cable.
	There are duplicate SCSI ID numbers in computer system.	Set different SCSI ID number for each device in your system (☞ P. 59).

Troubleshooting

Trouble	Possible Cause	Solution
The data of CD-ROM is not transmitted to your computer.	The software is not installed correctly.	Install the software correctly (☞ P. 19).
	The Interface cable pin is bent or broken.	Contact an Authorized Panasonic Service Center.
	The terminator switch of the player is set to OFF.	Turn the terminator switch ON (☞ P. 59).
	The dust (ex. hair) lies on the center spindle.	Remove the dust from the center spindle.
Transmission speed of data slows down.	Using the alkaline batteries/rechargeable battery with computer.	Use the AC adaptor.
	The notebook computer has entered the power management mode.	Set the CPU speed of the notebook computer faster in power management or use the AC adaptor.
Windows 95 computer does not recognize CD-ROM Player.	The Sound/CD-ROM Interface Card is not fully inserted, or the player is not turned on.	After turning on the player, open the My Computer, Control Panel, System and then Device Manager and click "Refresh".
"no DISC" message appears on player's display even after inserting a CD. Sound skips, or data can not be read.	CD is placed with the label side facing down.	Place the CD with the label side facing up (☞ P. 27).
	CD without  or  mark is used.	Use the CD marked with  or  .
	CD may have become dirty.	Clean the CD (☞ P. 60).
	CD is damaged.	Replace with another CD.
	The player or/and CD are damp or moist, because the player or/and CD may be moved from a cold place to a warm place.	Remove the CD from the player and do not use the player and CD for 1 hour.

Troubleshooting

Trouble	Possible Cause	Solution
You cannot listen to sound with the built-in speakers.	The player's VOLUME control is set to "0".	Set the player's VOLUME control to a higher level.
	The player's volume is set to the lowest level or Mute is selected in the Volume Control/Mixer application.	Set the player's volume to a higher level or turn off the Mute in the Volume Control/Mixer application (☞ P. 31, 32).
	Headphones are connected.	Disconnect the headphones (☞ P. 29).
You cannot listen to the audio data, except for CD-DA, with the built-in speakers.	The Interface cable is not connected to the player's Sound interface connector properly.	Properly connect the Interface cable to player's Sound Interface connector (☞ P. 15).
When playing audio CD on your computer, you can not listen to the audio CD inserted in the player with the built-in speakers.	The audio system device is connected to the LINE IN jack of the player.	Disconnect the audio system device from the player (☞ P. 26, 33, 49).
You cannot record using Microphone.	Microphone is not connected to the MIC jack properly.	Connect the microphone to the MIC jack properly (☞ P. 16).
	Volume of Mic is set to the lowest level or Mute is selected in the Recording Control application.	Set the volume of Mic to a higher level or turn off the Mute in the Recording Control application (☞ P. 48).
Speakers howl.	The volume of Mic level is set too high, or the Record Monitor is on.	Lower the volume of Mic level, off the Record Monitor in Recording Control application (☞ P. 48) or lower the player's volume.

Details of Setup Disk Software

About the installation copy

Setup disk contains the following programs (①, ② and ③). When installing the software, programs ② and ③ are copied entirely. However, in case of program ①, only one file (Ⓐ, Ⓑ or Ⓒ) is copied, depending on your hardware condition (参照 table below). Installation will automatically choose Ⓐ, Ⓑ or Ⓒ.

① ASPI Manager

File	Condition
Ⓐ ASPISMGR.SYS	when your computer has both Card Service and Socket Service.
Ⓑ ASPISDBK.SYS	when your computer has only Databook CardTalk.
Ⓒ ASPIS365.SYS	when your computer has neither Card Service nor Socket Service.

② CD-ROM Device Driver KMECD.SYS

③ Microsoft MS-DOS CD-ROM Extensions MSCDEX.EXE

Options for ASPI Manager (for sophisticated users)

Each file of ASPI Manager has the following options.

Ⓐ ASPISMGR.SYS

DEVICE=<path>\ASPISMGR.SYS [/PORT=<I/O base address>]
[/SOCKET=<slot No.>][/INT=<IRQ level>][/ADLIB][/BOFF]

Ⓑ ASPISDBK.SYS

DEVICE=<path>\ASPISDBK.SYS [/PORT=<I/O base address>]
[/SOCKET=<slot No.>][/INT=<IRQ level>][/MEM=<base address>]
[/ADLIB]

Ⓒ ASPIS365.SYS

DEVICE=<path>\ASPIS365.SYS [/PORT=<I/O base address>]
[/SOCKET=<slot No.>][/INT=<IRQ level>][/MEM=<base address>]
[/ADLIB][/I365RST]

Details of Setup Disk Software

/PORT=XXX	Since the I/O port is needed for the Sound/CD-ROM Interface Card, add this line and specify the base address at XXX using a hexadecimal number. The Sound/CD-ROM Interface Card occupies 32 bytes of space starting with the specified base address. The factory setting is 240h(ASPISDBK.SYS is 280h). If the specified address is already being used, specify another base address from the following addresses. Also, depending on the computer, the I/O port may need to be specified in the Card Manager (ASPISMGR.SYS, ASPISDBK.SYS). Refer to your computer manual. 220 240 260 280 (220h, 240h is not available in ASPISDBK.SYS)
/SOCKET=X	When you are using a personal computer with more than two PCMCIA card slots, add this line and specify the slot at X, where you are inserting the Sound/CD-ROM Interface Card. If you specify 0 or you don't specify the slot, the ASPI Manager searches all slots, and uses the first available slot.
/ADLIB	ADLIB 388h-38Bh will be opened as second I/O port.
/INT=X	For IRQ, you may select: 3, 5, 7 or 10(A). This option sets the IRQ level of the Sound/CD-ROM Interface Card using a hexadecimal number. The factory setting is 5. Make sure this number does not conflict with another device. The IRQ level is not set without this option. If you're using the SystemSoft Card Service, choose a number from the "IRQ=" entries in the CSALLOC.INI file.
/MEM=XXX	Option effective with ASPISDBK.SYS and ASPI365.SYS only. Add this line and specify the memory space's base address to read the card information by the segment address (hexadecimal number). You need to exclude this specified address in the EMS "X" option so that it will not overlap the region of EMS. If you don't specify the base address, CE00 is applied, and 8 KB of memory from CE000 to CFFFF is used.
/BOFF	Option effective with ASPISMGR.SYS only. Setting this option turns off the beep sound that is generated when inserting or removing the Sound/CD-ROM Interface Card.
/I365RST	Option effective with ASPI365.SYS only. After setting this option, PCMCIA controller chip (i82365) should be reset.

Options for Microsoft MS-DOS CD-ROM Extensions

The format of the MSCDEX program in the AUTOEXEC.BAT file is as follows:

MSCDEX [V /K /E] /D:[DriverName] /L:[DriveLetter] /M:[Value]

- /V** Displays the list of additional information including how much memory is used by buffers, resident data and resident code.
- /K** Type this only when the CD-ROM media directory is written in Kanji (Japanese).
- /E** Expanded memory (EMS) is usable if this is available in your system. This conserves about 16 KB of main DOS memory.

/D:[DriverName]

Driver name is a required parameter to communicate with the CD-ROM drive. The internal name of KMECD.SYS is PCMCIACD, and should be substituted for [DriverName].

/L:[DriveLetter]

Drive letter is an alphabetic character assigned to a CD-ROM drive. If there is more than one CD-ROM drive, the alphabetic characters are sequentially assigned starting with the entered drive letter. If no drive letter is entered, next available alphabetic character is assigned.

If you assign except A~M for DriveLetter, you must change the DOS LASTDRIVE statement. In your CONFIG.SYS file, add a line like this:

LASTDRIVE=

Type the alphabetic character (N~Z) assigned to the last valid drive that DOS may use.

/M:[Value]

MSCDEX allocates the memory as sector buffers for caching CD-ROM information. If no buffer size is entered, 10 buffers each of which uses 2048 bytes of memory will be allocated.

For example, to install MSCDEX with an internal name of PCMCIACD, use expanded memory, and configure the CD-ROM drive as drive H, enter:

MSCDEX /E /D:PCMCIACD /L:H

SCSI ID Number and Terminator

■ SCSI ID number:

Each SCSI device connected to your computer system has an individual ID number (refer to the respective manuals). Be sure that the CD-ROM SCSI ID number does not conflict with another SCSI device connected to the computer system. Normally personal computer's SCSI ID number is set to 7.

The factory setting of the player's SCSI ID number is set to 5.

■ Terminator:

Set the Terminator switch ON or OFF according to the player's condition.

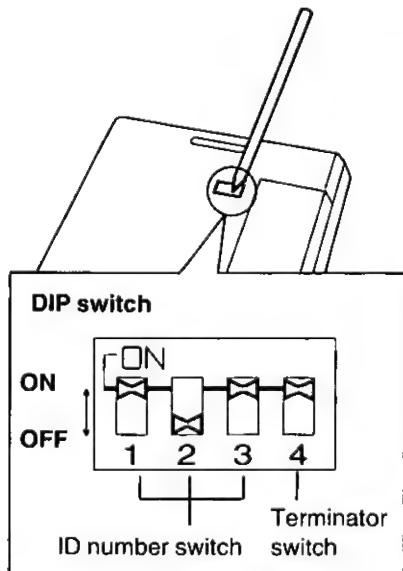
ON: when the player is connected to the computer system.

OFF: when using as a personal audio CD player (power consumption can be saved) (☞ P. 29).

The factory setting is **ON**.

Setting

Set the ID number switch (1~3) or Terminator switch (4) ON/OFF by using a pointed object like a pen, and referring to the table below (for ID number).



(For SCSI ID number setting)

ID number	ID number switch		
	1	2	3
0	OFF	OFF	OFF
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
7	ON	ON	ON

□ : Factory setting

Example: ID number=5/Terminator=ON

Player

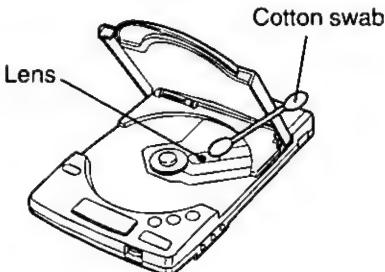
Cautions:

- Do not use benzine, thinner, etc.
- Do not use commercial lens cleaner.

Clean the outside of the player with a soft, dry cloth.



Clean the lens with a dry cotton swab or a lens blower.



CD

Cautions:

- Do not use solvents such as benzine, record cleaners or anti-static spray for records.
- Do not touch the signal side.
- Do not attach the labels to the disc.
- Do not write on the surface of disc with a pointed object like a pen.

Wipe from the center to the edge with a dry, soft cloth.



Specifications

Operating Environment (under no damp or moist conditions):	Temperature: 5°C (41°F) to 35°C (95°F) Humidity: 20% to 85% RH									
Storage Environment (under no damp or moist conditions):	Temperature: -20°C (-4°F) to 55°C (131°F) Humidity: 15% to 85% RH									
Player: Dimensions: Mass (Weight): Power Source: Interface: Connector (SCSI): Buffer Size: Battery Life [at 20°C (68°F)]:	138 (W)×204 (D)×35 (H) mm {5.52"×8.16"×1.4"} 0.5 kg {1.102 lbs.} (without batteries) Refer to the nameplate at the bottom of the unit. PCMCIA/SCSI-2 Half-pitch 50-pin 128 KB ● When using Panasonic alkaline "AA" size batteries									
	<table border="1"><tr><td></td><td>PHONES jack</td><td>Built-in speakers*¹</td></tr><tr><td>Audio CD</td><td>4 h</td><td>3 h</td></tr><tr><td>CD-ROM</td><td>2 h</td><td>1.5 h</td></tr></table>		PHONES jack	Built-in speakers* ¹	Audio CD	4 h	3 h	CD-ROM	2 h	1.5 h
	PHONES jack	Built-in speakers* ¹								
Audio CD	4 h	3 h								
CD-ROM	2 h	1.5 h								
	● When using the optional rechargeable battery									
	<table border="1"><tr><td></td><td>PHONES jack</td><td>Built-in speakers*¹</td></tr><tr><td>Audio CD</td><td>2 h</td><td>1.5 h</td></tr><tr><td>CD-ROM</td><td>1 h</td><td>1 h</td></tr></table>		PHONES jack	Built-in speakers* ¹	Audio CD	2 h	1.5 h	CD-ROM	1 h	1 h
	PHONES jack	Built-in speakers* ¹								
Audio CD	2 h	1.5 h								
CD-ROM	1 h	1 h								
Power Consumption:	● When playing CD-ROM (with Sound/CD-ROM Interface Card) 17 W [with AC adaptor] ● When player is off 2.5 W [with AC adaptor]									
Data Transfer Rate (when using AC adaptor): Access Time* ² (when using AC adaptor): (The information is based on the test results measured by Panasonic internal test software.)	150 KB/s (Normal Velocity mode) 600 KB/s (Quad Velocity mode) 1/3 stroke access time (Quad Velocity mode) 295 ms typical Full stroke access time (Quad Velocity mode) 540 ms typical									

*¹ Under the conditions of 30 mW+30 mW output.

*² When using optional rechargeable battery or alkaline "AA" size batteries, the access time may increase.

Specifications

Player: Compatible CD-ROM Format: Error Rates:	CD-ROM (Mode 1 and Mode 2 Form 1) CD-ROM XA (Mode 2 Form 2) CD-DA (CD) Photo CD Multi-session CD-I VIDEO CD Soft read errors Less than 10^{-9} Hard read errors Less than 10^{-12}
Audio Performance: Phones out (stereo): Mic (Monaural) Input level: Line in (stereo) Input level: Built-in speakers Output level:	Frequency response 20 Hz~20 kHz (without inserting Sound/CD-ROM Interface Card) S/N More than 80 dB (A Range) (without inserting Sound/CD-ROM Interface Card) Output level 0.6 Vrms 50 mVrms or lower (impedance 2 kΩ or higher) 1.2 Vrms or lower (impedance 30 kΩ or higher) 0.3 W+0.3 W (impedance 4 Ω)
Sound/CD-ROM Interface Card and Interface Cable:	Card type Type II Power source DC 5 V, approximately 160 mA Cable Length 375 mm (without connector) Data transfer rate 7.0 MB/s (MAX.) Sound/CD-ROM Interface Card Dimensions 54 (W)×85.6 (D)×5 (H) mm {2.13"×3.37"×0.20"} Mass (Weight) (with cable) 0.15 kg {0.331 lb.}
Sound: Number of quantization bits: Sampling frequency: Sound source: Software compatibility:	8 bit, 16 bit monaural/stereo recording 5.5, 8, 11.025, 22.05, 44.1 kHz (Selectable) FM synthesis (YAMAHA OPL 3 compatible) PCM (CODEC) (Recording and playing method) •WAVE (recording/playback) and MIDI (playback) performed using Windows-compatible audio device driver •Sound Blaster FM sound source for Windows and Ad-Lib for DOS compatible

End-User License Agreement for Microsoft® MS-DOS® CD-ROM Extensions

CAREFULLY READ ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT PRIOR TO OPENING THE PACKET. OPENING THE PACKET INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. If you do not agree to these terms and conditions, return the unopened packet and the other components of the Panasonic CD-ROM Sound Player to the place of purchase and your money will be refunded. No refunds will be given for products that have an opened packet or missing components.

- 1. LICENSE:** You have the non-exclusive right to use the one copy of the enclosed Microsoft MS-DOS CD-ROM Extensions software program ("SOFTWARE") on a single computer used by single user. The SOFTWARE is in "use" on a computer when it is loaded into temporary memory (i.e., RAM) or installed into permanent memory (i.e., hard disk, CD-ROM, or other storage device) of that computer. However, installation on a network server for the purpose of distribution to one or more other computers shall not be granted.
- 2. COPYRIGHT:** The SOFTWARE is owned by Microsoft Corporation or its suppliers and is protected by United States copyright law, international treaty provisions, and all other applicable national laws. Therefore, you must treat the SOFTWARE like any other copyrighted material (e.g., a book or musical recording) except that if the software is not copy protected you may either (a) make one copy of the SOFTWARE solely for backup or archival, or (b) transfer the SOFTWARE to a single hard disk provided you keep the original solely for backup or archival purposes. All other copies of the SOFTWARE are in violation of this Agreement. You may not copy the SOFTWARE manual(s) or written materials accompanying the SOFTWARE, if any.
- 3. OTHER RESTRICTIONS:** This agreement is your proof of license and must be retained by you. You may not rent or lease the SOFTWARE, but you may transfer your right under this License Agreement on a permanent basis provided you transfer this License Agreement, all copies of the SOFTWARE and all written materials, and the recipient agrees to the terms of this Agreement. You may not reverse engineer, decompile or disassemble the SOFTWARE. Any transfer must include the most recent update and all prior versions, if any. You will not export or re-export the SOFTWARE without the appropriate United States licenses (and foreign government licenses, if needed). Title and ownership of the SOFTWARE shall remain with Panasonic and/or its suppliers.
- 4. TERM:** This license is effective until terminated. You may terminate it by destroying the SOFTWARE and related documentation and all copies thereof. This license will also terminate if you fail to comply with any term or condition of the Agreement. You agree, upon such termination, to destroy all copies of the SOFTWARE and related documentation.

5. WARRANTY AND LIABILITY: NEITHER PANASONIC NOR PANASONIC'S SUPPLIER MAKES OR PASSES ON TO YOU OR OTHER THIRD PARTY, ANY WARRANTY OR REPRESENTATION INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NEITHER PANASONIC NOR PANASONIC'S SUPPLIER SHALL BE LIABLE FOR ANY DAMAGE SUFFERED BY YOU INCLUDING, BUT NOT LIMITED TO, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES. THE ABOVE LIMITATIONS SHALL APPLY REGARDLESS OF THE FORM OF ACTION WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT PRODUCT LIABILITY OR OTHERWISE, EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

6. NOTIFICATION: You are hereby notified that Microsoft Corporation is a third-party beneficiary to this Agreement to the extent that this Agreement contains provisions which relate to your use of the SOFTWARE licensed hereby. Such provisions are made expressly for the benefit of Microsoft Corporation and are enforceable by Microsoft Corporation addition to Panasonic.

7. U.S. GOVERNMENT RESTRICTED RIGHTS: The SOFTWARE and documentation are provided with RESTRICTED RIGHTS. Use, duplication or disclosure by the U.S. Government is subject to restrictions as set forth in subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c) (1) and (2) of the Commercial Computer Software--Restricted Rights at 48 CFR 52.227-19, as applicable. Manufacturer is Microsoft Corporation/One Microsoft Way/Redmond, WA98052-6339, U.S.A. Subcontractor is Panasonic.

8. CONTROLLING LAW: This Agreement is governed by the laws of the State of Washington, U.S.A.

Index

A

AC adaptor	8, 11
Accessories	8
Alkaline batteries	14
Audio Applications	16, 23, 26, 30
Audio Recorder	34
Extended Recorder	44
Mixer	32
Recording Control	48
Volume Control	31
Audio CD	28, 29
Audio CD control software	28
Audio connecting cable	16
Audio Recorder	34

B

Back-up copy	20
Battery cover	9, 11, 14
Built-in speakers	9, 28, 29

C

Connection	
Audio connecting cable	16
Microphone	16
Player to Computer	15, 17
CD-ROM Operation	28

D

Daisy chain	17
DC IN jack	9, 11
Desktop Computer	17, 19
Details of Setup Disk Software	56
DIP switch	59
Disc cover	9, 27
Display	9, 10

E

Error Messages	50
Extended Recorder	44

F

Features	5
Forward skip button	9, 29

I

Insertion/Removal with	
Power On	24
Interface Cable	8, 15

L

LINE IN jack	9, 16
Lock switch	9, 27

M

MIC jack	9, 16
Microphone	8, 16, 38, 47
Mixer	32

N

Notebook computer	15, 19
-----------------------------	--------

O

OPEN button	9, 27
Option	67

Index

P

Part Names	9
PHONES jack	9, 28, 29
PLAY/PAUSE/CHARGE button	9, 12, 29
Playing audio CD	28
Playing CD-ROM	28
Power On	18
Power Save Function	18
Power Supply	11
Precautions	8

T

Technical Support and Service Parts Calls	4
Terminator	59
Troubleshooting	53

V

VOLUME control	9, 29
Volume Control	31

R

README File	51
Rechargeable battery	11
Recording Control	48
RESET switch	9, 53
Reverse skip button	9, 29

W

Windows 3.1, 3.11	20
Windows 95	25

S

SCSI ID number	59
SCSI interface connector . .	9, 15, 17
Setup disk	8, 19, 56
Software Installation	19
Sound/CD-ROM Interface Card	8, 15
SOUND interface connector . .	9, 15
Specifications	61
STOP button	9, 29
System requirements	19, 44

Option

The following option is available through your local authorized parts distributor.

KXL-D30 Rechargeable Battery (Ni-Cd)

**Panasonic Communications & Systems Company,
Computer Products Division**
Division of Matsushita Electric Corporation of America
Two Panasonic Way, Secaucus, New Jersey 07094

Panasonic Sales Company
Division of Matsushita Electric of Puerto Rico, Inc.
San Gabriel Industrial Park, 65th Infantry Avenue KM. 9.5
Carolina, Puerto Rico 00630

Matsushita Electric of Canada Limited
5770 Ambler Drive, Mississauga, Ontario, L4W 2T3

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan
